What is claimed is:

[c1] 1.A rings-based system on a chip, comprising:

a plurality of ring members on a ring network that communicate using point-to-point connectivity;

a message traversing the ring from member to member;

the system being adapted so that, during normal operation, upon the message arriving at a given ring member the message is processed by that ring member if the message is applicable to that ring member, and if the message is not applicable to that ring member, the message is passed on to the next ring member;

wherein the system is further adapted for a scan testing mode in which one of the ring members is enabled for a scan output and the other ring members deactivated.

[c2] 2.The system of claim 1, wherein the scan output is packaged into one or more messages that are transmitted by the one ring member.

[c3] 3.The system of claim 2, wherein the one or more messages are transmitted to a processor.

[c4] 4.The system of claim 3, wherein the processor is a ring member operating as a supervisor that consumes supervisory response messages.

[c5] 5.The system of claim 3, wherein the processor makes the data from the one or more messages available to debugging software.

[c6] 6.The system of claim 1, wherein a second of the ring members comprises a processor that issues at least one message that operates to deactivate the other ring members and to enable the one ring member for the scan output.

[c7] 7.The system of claim 1, wherein operation of the system in the scan testing mode causes the one ring member to shift out flip-flops associated with the one ring member into one or more messages sent on the ring.

[c8] 8.The system of claim 1, wherein the scan testing mode is initiated by resetting the ring network and enabling the one member for the scan mode.

[c9]   9.The system of claim 8, wherein initiation of the scan testing mode includes enumerating the ring network.

[c10]   10.The system of claim 1, wherein the plurality of ring members are coupled to the ring network using a plurality of ring interfaces having registers.

[c11]   11.The system of claim 10, wherein the registers include bits that can be set to deactivate the ring member associated with that ring interface.

[c12]   12.The system of claim 10, wherein the registers include bits that can be set to enable the ring member associated with that ring interface for the scan output.

[c13]   13.The system of claim 1, wherein the scan testing mode allows a user of the system to debug the system without adding additional hardware.

[c14]   14.The system of claim 1, wherein the deactivated members pass messages without consuming the messages.

[c15]   15.A method of scanning in a ring network having a plurality of ring members, comprising:
observing a defect or anomaly during normal operation of the ring network;
issuing at least one message that causes one ring member to enter a scan output mode and other ring members to be deactivated;
resuming operation of the ring network; and
outputting scan data from the one ring member onto the ring network as messages.

[c16]   16.The method of claim 15, wherein the at least one message comprises at least one supervisory message that configures bits in ring interfaces associated with the ring members.

[c17]   17.The method of claim 15, wherein during the scan output mode the one ring member packages its scan output as messages to be transmitted to a processor ring member.

[c18]   18.The method of claim 17, wherein the processor ring member makes the scan output available to debugging software.

[c19]   19. The method of claim 15, wherein the step of observing takes place at a point in time during the normal operation, and further wherein the step of resuming is carried out just prior to the point in time.

[c20]   20. The method of claim 15, further comprising the step of causing a different ring member to enter the scan output mode in order to isolate the defect or anomaly.